Benjamin Shanabrook, PH.D .

SES

Superintendent, Electronics Science and Technology Division Naval Research Laboratory

Dr. Shanabrook has served as the superintendent of the Electronics Science and Technology Division (ESTD) at the Naval Research Laboratory (NRL) since December 2006. He is responsible for the technical and administrative management of a broad spectrum of basic and applied research programs involving in-house experimental and theoretical research at the frontiers of electron device technology. Dr. Shanabrook became a member of the SES in March 2008 and has worked at the Naval Research Laboratory since 1980.

In 1990 Dr. Shanabrook was promoted to lead the Nanostructures Section of the Electronic Materials Branch in the ESTD of NRL. As Section Head he had supervisory responsibility for three Research Physicists and coordinated the activities of postdoctoral research associates and visiting scientists in the Nanostructures section. He applied specialized expertise in planning, organizing, reporting and personally conducting investigations of the growth, optical, structural and electronic properties of epitaxially grown nanostructures.

Dr. Shanabrook was promoted in 1997 to lead the Electronics Materials Branch in the ESTD of NRL where he had supervisory responsibility for twenty-two federal scientists and engineers (16 physicists, 4 electrical engineers, 1 chemist, 1 secretary) and coordinated the activities of 14 postdoctoral research associates, two visiting scientists and two contractors. The Branch was engaged in a wide variety of fundamental and applied research of electronic materials and electronic device structures that have application in military devices and components such as compound semiconductor microwave devices, infrared detectors, lasers, storage devices, optical modulators and nanoelectronics-based sensors.

In December 2006, Dr. Shanabrook became acting superintendent of the ESTD at the NRL. He formally became superintendent in March 2008. In this position, he is responsible for the technical and administrative management of a broad spectrum of basic and applied research programs involving in-house experimental and theoretical research at the frontiers of electron device technology. Basic research is performed on electronic materials, surface physics, nanoscience and materials growth with the goal of developing a fundamental understanding that enables better performance of current electronic devices as well as the creation of disruptive

technologies. When appropriate, the results of this basic research are transitioned into the applied research areas that aim to redefine the "state of the art" in electronics technology. This includes electromagnetic wave generation and detection from 10-1000GHz based on both solid state and vacuum electronic devices and the creation of power electronic devices that operate at voltages as high as 30kV with megawatts of power control. This research and technology development is accomplished with a $49M budget acquired from the DoD funding agencies. Working with Dr. Shanabrook are two ST members and a staff of over 140 civilians, contractors, post doctorate fellows and students.

He received bachelor's degrees in chemistry and physics in 1975 from Millersville State University and his Ph.D. in physics from the Pennsylvania State University in 1981. In 1980 he was awarded a National Research Council Post Doctoral Fellowship at the Naval Research Laboratory.

Dr. Shanabrook has over 200 technical publications with ~5000 citations (h-index=37), three patents and co-authored four chapters in books. He is a fellow of the American Physical Society and has served as a member of the program committee of the Electronic Materials Conference and the Physics and Chemistry of Semiconductor Interfaces Conference. In addition he is a member of the Board of Advisory Editors of Physica E - Low Dimensional Systems and Nanostructures. At NRL he received the Award of Merit for Group Achievement for the development an Antimonide-based High Electron Mobility Transistor, was awarded performance-based Awards for every year of employment at NRL, coauthored eleven NRL Review Articles and received several NRL research publication Awards.